STATEMENT OF

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"COMMERCIAL JET FUEL SUPPLY: IMPACT ON U.S. AIRLINES"

BEFORE THE
AVIATION SUBCOMMITTEE
OF THE
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
OF THE HOUSE OF REPRESENTATIVES

FEBRUARY 15, 2006

Good morning. I am John Heimlich, vice president and chief economist for the Air Transport Association of America, Inc. I appreciate the opportunity to speak with you today about jet-fuel supply and the commercial air transport industry.

The Air Transport Association of America, Inc. (ATA), the trade association of the principal U.S. passenger and cargo airlines, welcomes and appreciates the opportunity to submit these comments for the record regarding jet-fuel supply and the commercial air transport industry. ATA's 19 member airlines have a combined fleet of more than 4,400 aircraft and account for more than 90 percent of U.S. airline passenger and cargo traffic. ATA and all of its members have a vested interest in ensuring access to an affordable and reliable supply of jet-fuel.

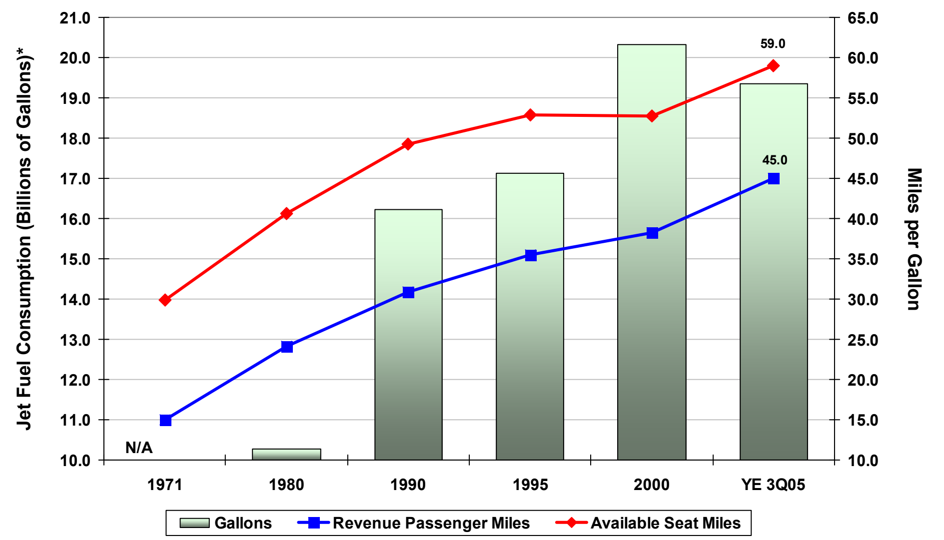
Today I would like to discuss the impact of three years of increasingly expensive jet-fuel on U.S. air carriers, provide some examples of the unprecedented measures they have taken to reduce their fuel costs during and preceding this period, and explain how modernization of the air traffic control (ATC) system is one of the best ways to help all system users minimize their fuel expenditures.

Fuel Prices Outpace Airline Cuts and Conservation

With fuel expense ranking as the number-one or number-two cost category, airlines have an enormous built-in financial incentive to reduce consumption. Indeed, the industry's track record for fuel efficiency gains demonstrates just that. During the last two years, this incentive has risen dramatically, and the carriers have responded by leaving no stone unturned in identifying operational or other means of fuel conservation.

Aviation Fuel Efficiency Has Tripled Since 1971

Conservation Accelerated Post-9/11, Keeping Consumption Below 2000 Peak



*Consumed by U.S. passenger and cargo airlines in worldwide operations

Source: Air Transport Association

Since 2000, airline fuel efficiency has risen an impressive 18.1 percent, on average, from 38.2 revenue passenger-miles (RPMs) per gallon to 45.1. Of course, part of that gain is driven by higher passenger load factors. If we look strictly at capacity per gallon, we find a 12.1 percent increase during that same period, from 52.8 to 59.0 available seat-miles (ASMs) per gallon. Viewed over a longer time span, U.S. airlines have tripled passenger-miles flown per gallon since our first data point in 1971. ASMs per gallon doubled in that period.

Airlines have developed many different operational and planning techniques aimed at saving fuel and optimizing fuel purchases. On the operational front, the following measures are among those utilized in recent years by air carriers to conserve fuel:

- Initial Climb-Out Profile Management – protocols for more fuel-efficient coordination of flight speed and flap utilization during post-takeoff climb out
- Aircraft Track Management – more in-depth analyses of weather conditions (temperatures at altitude, winds aloft, etc) and runway selection having allowed for significant fuel savings
- Vertical Profile Management – greater use of aircraft flight-management systems in selecting flight levels, profiles and speeds to conserve fuel
- Fleet-wide Fuel-Management Systems – allowing air carriers to optimize certain aircraft types for specific routes, with fuel conservation as a greater consideration
- Single-engine taxiing during normal operations and selective engine shutdowns during ground delays
- Reducing and measuring more accurately onboard weight, and redistributing cargo
- Cruising longer at higher altitudes and employing shorter, steeper approaches

In terms of planning for fuel usage, airlines are:

- Working with the Federal Aviation Administration (FAA) to change en route fuel-reserve requirements, to reflect state-of-the-art navigation, communication, surveillance and wind forecast systems
- Employing self-imposed ground delays, to reduce airborne holding
- Modernizing their fleets with more fuel-efficient airplanes
- Investing in winglets, to reduce aircraft drag and thereby increase fuel conservation
- Redesigning hubs and schedules, to alleviate congestion
- Advocating expanded and improved airfield capacity
- Using airport power rather than onboard auxiliary power units when at the gates
- Changing paint schemes, to minimize heat absorption
- Altering the location at which fuel is purchased
- Pooling resources, to purchase fuel in bulk through alliances with other carriers

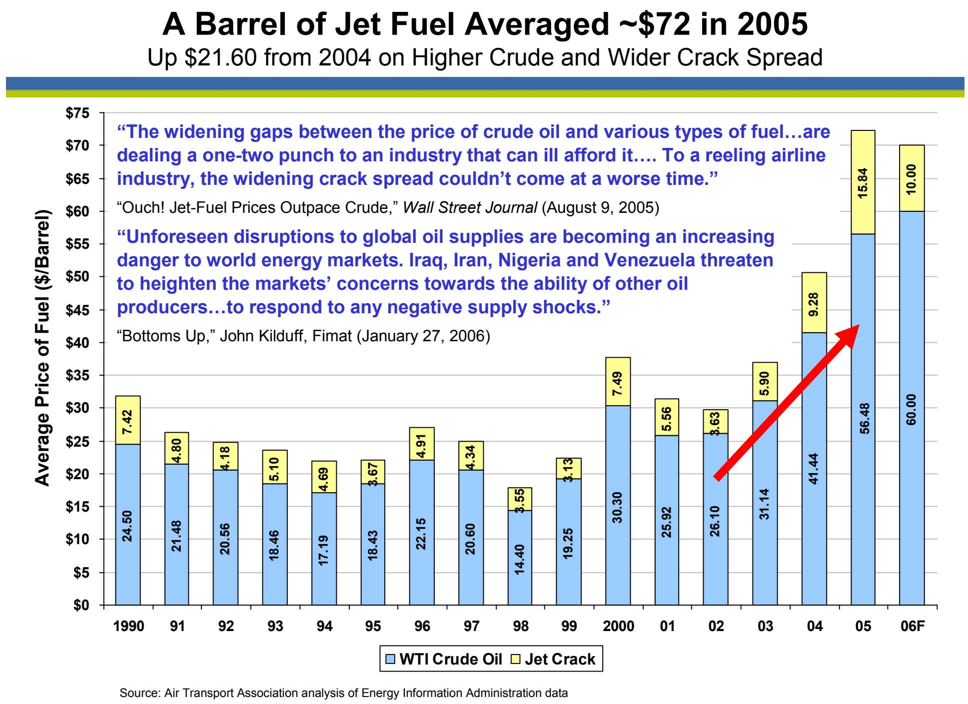
In addition to fleet modernization, certain capital investments that might not have made financial sense in the late 1990s have newfound economic appeal. For example, in “Every Drop Counts” (*Alaska Airlines Magazine*, January 2006), Alaska Airlines Chairman and CEO Bill Ayer notes that winglet extensions, which make the wings more aerodynamic, cut fuel consumption between three and five percent, saving more than 100,000 gallons of fuel per aircraft per year, not to mention reducing noise and emissions.

While examples of weight reduction to conserve fuel abound throughout the industry, some recent developments deserve mention. Just last week, American Airlines announced plans to remove the rear galleys from its 327 MD-80 aircraft, which make up half its fleet, and, replace them with four seats, beginning in September. American expects the move to improve earnings by $34 million annually. Delta is considering a similar move, and Northwest has already removed ovens from the galleys of several aircraft used on domestic flights, to reduce aircraft weight. Low-cost carriers, too, may take such steps as carrying less drinking water, pulling off unused electronic equipment, counting the number of children onboard (to carry less fuel) or even replacing glass mirrors with acrylic ones.

Jet-fuel Costs: A Look Back at Prices and Their Consequences

In evaluating the pain airlines and their workers have been facing from soaring jet-fuel prices in the last few years, it is helpful to consider the price range to which they had become accustomed. It is against that backdrop that operational and other investments were made. From 1991 through 1999, U.S. airlines enjoyed an average annual jet-fuel price of 56 cents per gallon. During this period, the annual average never exceeded 65 cents. In fact, in six of those nine years, the price fell between 50 and 60 cents. The significance, therefore, is not only the reasonable average price, but also its stability.

In 2000, the average market price rose to 90 cents, but the market for air travel at the time supported much higher fares than is the case today. Again, it was in this context in that the airlines made decisions about staffing, aircraft orders, route planning and other areas throughout the business. Airline financial planners did anticipate drops in demand and increases in fuel price, but nowhere to the extent and duration of what they have witnessed during the last few years. In 2001, accelerated by the drop in global energy demand after 9/11, jet-fuel prices fell to an average of 75 cents per gallon, and again in 2002 to 71 cents.

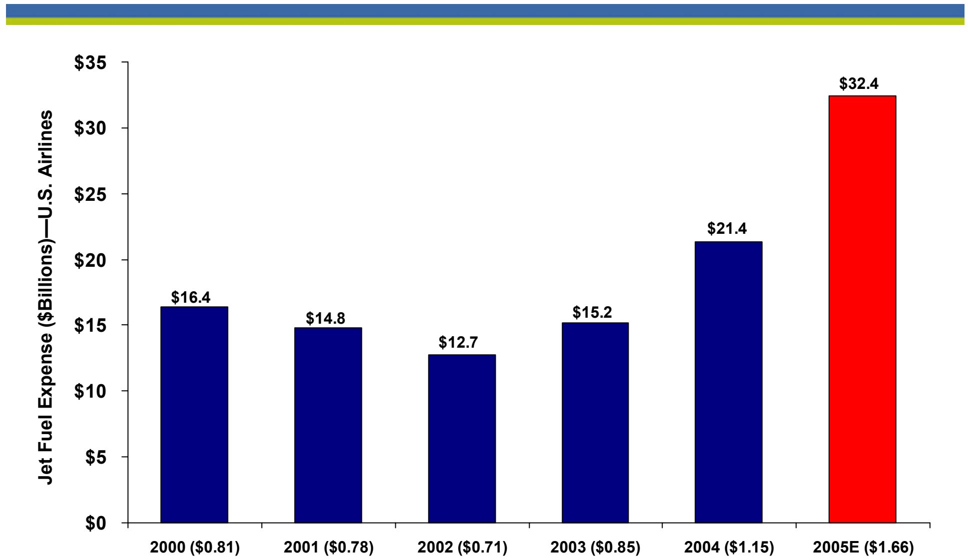


As global energy demand resumed, aviation volumes began to recover and geopolitics and market speculation ruled the day, the price of crude oil and its refined products began to surge. During the next three years (2003-2005), the market price of jet-fuel averaged $0.88, $1.21 and $1.72, respectively. The outlook for 2006 is no rosier from the airlines' perspective when it comes to jet-fuel prices. Through February 10, U.S. spot markets were averaging $1.85, and the PIRA Energy Group, a leading energy analysis firm, is projecting a full-year average in excess of $1.80. As of February 7, the U.S. Energy Information Administration's Short-Term Energy Outlook forecasts $1.86 for 2006 and $1.76 for 2007. This forecast is especially critical at this time because of the airlines' increasing exposure to fluctuating market prices as their fuel hedge positions deteriorate. This includes leading low-cost carriers, who likely would have lost money in 2004 and 2005 had it not been for their hedges.

Keep in mind that U.S. passenger and cargo airlines consume about 19.5 billion gallons annually. Thanks to improved fuel efficiency, that figure remains below the 2000 peak of 20.3 billion gallons. Also keep in mind that airlines need little incentive to improve jet-fuel efficiency, because unlike other modes of transport, they have no alternative source of energy. Nonetheless, at today's consumption rate every penny increase in the price of a gallon of jet-fuel drives an additional $195 million in annual operating expenses for the industry. So if the price were a dollar higher over the course of a year, we're talking about a $19.5 billion increase in expenses. In fact, from 2000 to 2005, the industry's fuel tab doubled from $16.4 billion to an estimated $33 billion, even though it consumed less. The increase from 2004 to 2005 alone exceeded $11 billion.

Industry Fuel Expense Estimated to Have Risen $11B in ’05

Higher Crude, Crack Spread, Consumption All Fueling Increase vs. ´04



Sources: Air Transport Association, Energy Information Administration, Department of Transportation

That’s just staggering, and virtually impossible to pass through in an environment of limited pricing power for air transportation services. Consider how higher fuel prices affect an individual flight. As cited in a September 12, 2005, Bear Stearns research report, “It costs an airline over $12,000 in fuel alone to fly a [Boeing] 757 from L.A. to New York, which means that flying coast-to-coast is over $4,000 more expensive per trip today than it was in 2004.” Just two days later, the *Washington Post* quoted now defunct Independence Air’s Jeff Pollack as follows: “Flying to L.A. burns a lot of fuel, and we’re not seeing average fares that cover that. We burn about 3,500 gallons on a trip to the West Coast, and since fuel is up by a dollar in recent months, that’s another $3,500 per trip we need to recoup. The current fares people are willing to pay to the West Coast just aren’t able to cover the expense of flying there.”

On a unit-cost basis, for most carriers fuel has now tied or overtaken labor as the industry’s largest expense. More precisely, a historically three-to-one labor-to-fuel cost ratio has become a dead heat at best. This turn of events speaks volumes about the self-help efforts of the airlines and the workforce-at-large while grappling with price spikes in other areas of the business over which they have such little control. Of course as most of us know, fares have fallen markedly during this same time period. In 2005, domestic passenger yields, the prices customers pay to the airlines to fly one mile before taxes, were an estimated 19 percent below 2000 levels. In short, passenger airlines have not been able to cut costs or raise fares fast enough to keep up with skyrocketing fuel costs. Driven largely by an estimated $11 billion increase in fuel expense from 2004, U.S. airlines lost an estimated $10 billion in 2005. At 2004 fuel prices, the industry would have broken even or recorded a small profit. At 2002 or 2003 fuel prices, nearly every U.S. carrier would have recorded meaningful profits.

While the U.S. government can do relatively little in the short term to reduce jet-fuel prices, it can do its part to minimize non-fuel expenses, such as unfunded security mandates or aviation taxes and fees with little or no benefit to airlines. Also, keep in mind that because the price of jet-fuel is principally determined by the underlying price of crude oil, any efforts to encourage conservation of crude oil across the broader economy ultimately provide relief to the aviation community.

High fuel prices have also compounded the demand-related effects of 9/11 in forcing airlines to reduce the industry payroll. According to the latest government figures, network carriers had already eliminated 162,000 jobs, or nearly one out of every four workers, by the end of 2005. In 2005, it cost the airlines an average of $75,000 to employ one worker. That means that the $11 billion increase in jet-fuel expense from 2004 could have supported over 133,000 airline employees. While this statement is not intended to establish direct causation between the increase in fuel and the number of jobs lost we do have estimates from third-party econometric models.

Analysis conducted for ATA by Guerilla Economics estimated that every billion-dollar increase in annual jet-fuel expense on the industry leads to 862 lost jobs. Perhaps more significantly, the study found that "large price increases in air transportation can curtail demand in other industries," as the industry will be forced to pass on extra fuel costs through higher ticket prices, reduced service or additional charges for in-flight items. In examining the 2005 increase from 2004, study author John Dunham found that even "if the costs are passed on to domestic business consumers only, over 114,000 American jobs could be lost," including 6,600 in restaurants and bars, 6,300 in wholesale trade and thousands more in hospitals, retail, real estate, management consulting and other U.S. industries. "Even if the industry were to absorb the entire [cost]," he writes, "the cost to other sectors of the economy from reduced supplier contracts, lower salaries and benefits for employees and reduced industry spending could be as high as 35,000 jobs."

Fuel Costs: Obscure Federal Taxes, Regulations Also Take Their Toll

In addition to facing record high fuel costs during the last few years, Congress has passed several pieces of legislation that have effectively increased the airlines' cost of purchasing jet-fuel. The American Jobs Creation Act of 2004 included provisions that were aimed at eliminating perceived tax fraud involving the federal excise tax on highway diesel fuel. The tax writers believed that untaxed jet-fuel was being diverted for use as diesel fuel, without the appropriate excise taxes being paid. Although the airlines were never accused of doing anything wrong, they have been saddled with a significant financial burden in an attempt to fix a problem they did not create.

The federal excise tax on commercial aviation fuel is 4.4 cents per gallon for fuel used in domestic flights, and zero for fuel used in international flights. Prior to passage of the American Jobs Creation Act, airlines either paid their fuel supplier the appropriate tax, or self-assessed the tax by making semi-monthly tax deposits. Under the new law, at airports that receive their fuel supplies by truck rather than by pipeline, airlines were generally required to pay 21.9 cents per gallon in tax at the time they received the fuel (even though the actual tax rates of 4.4 cents or zero still applied) and then file a claim for refund of the overpaid taxes. This has resulted in the airlines being required to initially overpay their taxes by in excess of $520 million per year, and then claim a credit or seek a refund of that amount. Forcing taxpayers to overpay their tax liability is not only destructive tax policy, but the added financial and administrative burden on the airlines comes at a time when they can least afford it.

The “Safe, Accountable, Flexible, Efficient Transportation Equity Act” passed in 2005 only made things worse. It increased the amount of tax airlines must prepay at non-pipeline supplied airports from 21.9 cents per gallon to 24.4 cents per gallon, again without any increase in the amount of tax ultimately due. This change added approximately $80 million to the amount the airlines must prepay, and then recover, adding to their financial burden.

But Congress didn’t stop there. The Energy Policy Act of 2005 imposed an additional fuel tax on the airlines. Fuel used in foreign trade has long been exempt from the 0.1 cents per gallon Leaking Underground Storage Tank (LUST) Trust Fund tax. The Energy Act removed that exemption. This new tax will cost U.S. airlines almost $3 million per year. However, the potential cost to U.S. airlines is much greater. This tax now also applies to foreign air carriers purchasing fuel in the United States. Taxing fuel purchased by foreign airlines violates the taxation policies adopted by the United Nations-based International Civil Aviation Organization, to which the United States has agreed. More importantly, imposing this tax on foreign carriers violates numerous bilateral aviation services treaties that the United States has entered into with other countries. These agreements provide that no tax will be imposed by a country on fuel purchased by a carrier from the other contracting country. However, this provision is based on reciprocity. Now that the United States has imposed a tax on fuel purchased in the United States by foreign carriers, U.S. carriers are exposed to taxes imposed by foreign countries, at rates potentially much greater than that imposed by the United States.

In summary, over the span of one year, Congress increased the airline industry’s fuel tax burden three times, either directly, through higher taxes or indirectly by increasing payment requirements and forcing cash-starved carriers to seek reimbursement for overpayments.

Another fuel-cost concern looming on the horizon for air carriers and all consumers of refined products, is the request to the Federal Energy Regulatory Commission (FERC) by the association representing oil pipelines for a base-line rate increase. As part of its every five-year review of oil pipeline tariff rates, FERC is considering what annual rate increase that oil-pipeline owners and operators should be allowed to charge their customers. Currently, oil pipelines used to carry oil, gasoline, diesel, home heating oil and jet-fuel are allowed to increase their rates each year by a percentage no greater than the Producer Price Index (PPI). The PPI is widely regarded as the rate of inflation for wholesale goods and services. However, the petition from the oil pipeline association would raise that ceiling to “PPI + 1.3 percent,” allowing pipelines to increase their base-rate each year by the rate of inflation plus an additional 1.3 percent. Such an increase would have an even greater inflationary impact on the cost of virtually all fuels and over time would build upon itself at a rate that would quickly outpace the cost increases in other sectors of the economy. Furthermore, many of the major pipelines that are seeking this increase are owned or partly owned by oil companies or refineries, an industry that, in the current economic climate, hardly needs a federally mandated rate increase.

ATA has submitted comments to FERC on this issue opposing an increase in the price index for oil pipelines, and we call upon members of this Committee to send a strong message to the Commission that giving rate increases to monopoly energy pipelines at the expense of consumers is a bad idea.

Jet-fuel: From Well to Wing

Oil production in the United States is becoming more and more concentrated in the Gulf of Mexico, not because more oil is being discovered there, but rather because there are fewer and fewer areas that are open for exploration and production. With increasing demand throughout the economy and limited access to domestic supplies, it is obvious that U.S. consumers must rely on foreign suppliers to make up the difference. Today our nation buys oil from a globally diverse group of suppliers including private domestic producers from Alaska to Louisiana, to a mix of private and state-owned suppliers in nations like Kuwait, Mexico, Russia, Canada and Venezuela. With global demand averaging 85 million barrels per day in 2006, political uncertainty in key parts of the world and very limited spare capacity it is no wonder we face today's high crude-oil prices.

Producers or their representatives sell the oil through myriad arrangements, including both private bilateral contracts as well as market contracts that are priced through a commodity exchange such as the New York Mercantile Exchange (NYMEX).

Once extracted from the ground, oil comes to U.S. refineries via pipeline, ocean-going tanker or barge. Whether as oil, as partially refined or fully refined product, each time petroleum is transported there is a cost associated with it, so going back to the proposed increase in the oil pipeline index, any increase in transportation costs will likely be passed through to the ultimate consumers of the product. As it is not uncommon for gasoline and jet-fuel to be transported through pipelines at multiple stages in the production and distribution process, any increase in the regulated tariff rates for oil pipelines would have a multi-stage cost impact.

As noted above, jet-fuel is similar in its formulation to diesel fuel and home heating oil. Refineries that produce jet-fuel will often shift production output between similar products, depending on what is most profitable, although their ability to shift production between the various products is limited. This goes back to the price link between jet-fuel and similarly constituted fuels. As is the case with crude oil, refineries or their representatives sell their products through various contractual arrangements or commodity markets, with prices being negotiated between parties or set by price indicators such as the NYMEX.

Once refined, jet-fuel and other fuels travel by pipeline to storage sites or airports or fuel terminals where it is distributed by truck, barge or, again, pipelines to the final points of sale, in our case to airports. Fuel distribution at airports can happen in many different ways. Some airports have internal pipeline systems (not subject to FERC regulation) that are used to carry the fuel from the "fuel farm," a fuel-storage site at or near the airport, under ground to the terminal gates, where hoses span the final distance to the wing of the airliner. At airports without internal pipeline systems refueling trucks are used to move fuel from the fuel farm to the aircraft. There are many variations on this structure, including combinations of each but, by and large, this is the way fuel moves about an airport.

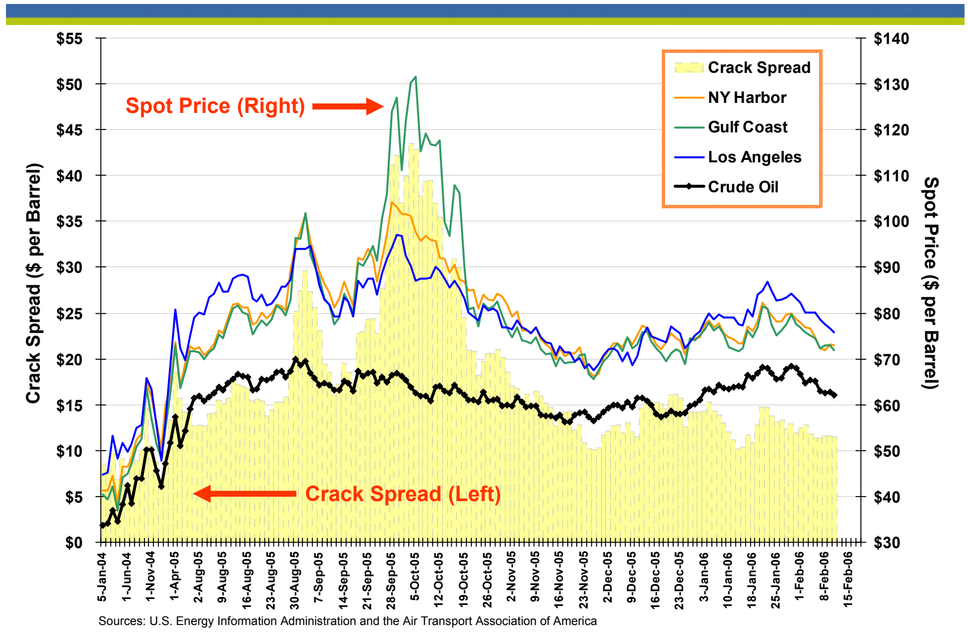
Unlike other fuels, such as gasoline, heating oil and natural gas, jet-fuel is not traded on any of the major exchanges. Air carriers buy fuel in several different ways, from multiple suppliers and at differing rates. Not every supplier operates at every domestic airport that a carrier may serve, so multiple arrangements are necessary. Furthermore, airline schedules make fuel demand generally predictable, allowing carriers to purchase fuel months or years in advance and, therefore, receive a discounted rate from the supplier. As a result, most airline fuel purchases are conducted on a bilateral basis, between supplier and carrier rather than through a market such as the NYMEX or other commodity trading markets. In most cases, the terms of these contracts are not reported for competitive reasons to protect both parties. When you see regional jet-fuel prices quoted in energy and other publications they reflect an estimated “snap shot” of the contracts within that region as disclosed by suppliers or buyers in that region.

Jet-fuel is linked to the commodities markets principally through home heating oil, a refined product similar in consistency. Because home heating oil is traded on public exchanges, it is often used as a pricing reference for jet-fuel. So when the price of heating oil rises, so does the price of jet-fuel. The inverse is also true in that jet-fuel prices often move heating oil prices.

Just as motorists pay different prices for gasoline in different parts of the country, airlines pay different prices for jet-fuel in the Gulf Coast than they do in New York and Los Angeles. West Coast prices traditionally run higher, because of overall refining capacity, storage, logistics and distribution inferiority. In addition to the mountainous terrain, which limits trucking capability, the West Coast lacks the more robust pipeline network of the East, although the latter is becoming increasingly strained by today’s demand and competing product needs (i.e., gasoline vs. diesel vs. jet). Much of the product in the West Coast is imported, often from countries with even higher prices. [Note that an estimated 48 percent of the jet-fuel supplied at LAX arrived by boat in 2005.] Final prices may also include the expense of shipping product across the Pacific Ocean. Prices quoted in Los Angeles have exceeded their Gulf Coast counterparts in 174 of the last 185 months, beginning in September 1990, when the Department of Energy began recording geographic differentials. The differential hit a monthly high of 29 cents per gallon in April 2004, averaging 13 cents for the year and disproportionately affecting those airlines with extensive western-U.S. operations. The differential thus far in 2006 stands at 12 cents per gallon.

Jet Fuel @ $70-80/bbl on High Crude Prices

Post-Rita, Average Crack Spread Surpassed $43/bbl (incl. $69 for Gulf Coast)



In contrast, because prices in any marketplace are driven by supply and demand, in the period during and surrounding Hurricanes Katrina and Rita, prices in the Gulf Coast soared to $3.13 per gallon, a staggering $1.06 higher than in Los Angeles. During the hurricanes, airlines purchasing a majority of their fuel in the Gulf or under term-contracts priced off of Gulf Coast indices suffered disproportionately, in addition to incurring exorbitant costs for tankering. As illustrated above, the U.S. market for jet-fuel and other petroleum products is faced not only with challenging logistics, but also with extreme volatility.

Hedging v. Spot Market

The primary means through which airlines purchase jet-fuel is actually via “term contracts” based upon a projected volume for a given period. For example, United Airlines might agree with supplier X to supply its requirements in Chicago for a one-year term from February 1, 2006, through January 31, 2007, estimated at five million gallons per year on a Platts Gulf Coast index (based on the week prior to delivery) plus or minus a fixed differential (usually stated in cents per gallon).

Existence of the futures market and other derivative instruments also allows any participant to “lock in” the prevailing price for future deliveries, such as home heating-oil prices for the winter heating season. Such a strategy, called a “hedge,” involves a series of transactions, offsetting profits or losses on a futures transaction against losses or profits on the physical purchase or sale of oil. By limiting the uncertainty over future costs, the hedge allows companies to mitigate volatility and thereby improve financial planning. A hedge instrument may or may not accompany the specific physical delivery. In most cases it does not. An airline could hedge volume at a fixed price, but most frequently hedges occur in paper markets or on an exchange, typically settled on a monthly or quarterly basis between the airline and an oil company or bank.

Spot market purchases[1] constitute a minute portion of the industry's jet-fuel consumption. These purchases tend to be limited to larger, more sophisticated airlines that have become integrated into the supply chain for reasons of price or supply surety. And even those airlines only tap the spot market for well under 10 percent of annual purchases.

Much attention has been given to the hedging positions of passenger airlines in recent years. Traditionally, airlines have hedged a portion of their fuel requirements by locking in future purchases at a set price. However, hedging is a gamble, rather than an arbitrage opportunity, and it requires a relatively healthy financial condition (i.e., investment-grade credit), a willing counter-party, and often a hefty upfront transaction cost. In a period with abysmal credit ratings, it is virtually impossible to secure a good deal for many carriers. Some carriers had to liquidate hedges, either in the course of filing for bankruptcy protection or to free up cash to meet immediate financial obligations. No airline is 100 percent hedged, and those with favorable hedges see them eroding over the next few years. While airlines are possibly the most visible sufferer of the run-up in energy costs they are by no means alone. No industry in America foresaw oil prices in excess of $50 per barrel at this point, let alone $70.

The Hurricanes and Their Effect on Jet-fuel

Like all U.S. consumers of products refined from oil, air carriers feel the financial pain when there is a disruption in the supply chain. In the days and weeks immediately after hurricanes Katrina and Rita, when oil production in the Gulf of Mexico and refining capacity along the Gulf Coast was shut down, air carriers were forced to take extraordinary measures to avert fuel supply-related service curtailments. For several weeks air carriers, fuel suppliers and airport fuel-system operators worked closely to identify airports where fuel supplies were tight and make operational changes such as "tankering," to slow supply draw-downs. Tankering, the process of flying additional fuel into an airport on an aircraft so as to minimize fuel uplift at that destination, can be extremely expensive and inefficient. In the period after the hurricanes, carriers operating into airports with tight fuel supplies not only suffered from record-high fuel prices but were forced to burn extra fuel when tankering, in order to maintain those routes.

It is critical for the public and public officials to realize that though airlines were able to take heroic steps to avoid disrupting customers during the hurricanes, they did so at great incremental operating costs. They have a unique capability to ferry fuel from one location to another and, ironically, may have a tendency to take a back seat to other modes of transportation or fuels in terms of priority in pipeline queue, for example, if gasoline stations run out of fuel and motorists increase pressure on local officials.

The airline experience and indeed the experience of all consumers after the hurricanes demonstrated the fragility of our system for providing the fuels we all depend upon. The hurricanes also demonstrated the risk our nation has exposed itself to by concentrating so

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[1] As defined by the U.S. Energy Information Administration, "A spot transaction is an agreement to sell or buy one shipment of oil under a price agreed-upon at the time of the arrangement."

much of its oil production, refining and energy transportation infrastructure in one region of the country. By not expanding and diversifying our supply and refining options we are destined to depend increasingly on foreign sources of crude-oil, as well as refined products. This lengthens the supply chain and increases the chances for disruption, which, along with the complicated logistics and distribution system, should concern all U.S. consumers, not merely the airlines.

ATC Modernization: Conserving Fuel and Time

The existing air traffic control (ATC) system has generally served our nation well. However, it was not designed with fuel conservation in mind, nor was it built to accommodate the traffic levels that we face today and into future. A modernized system utilizing available technologies and recently developed procedures could save millions of gallons of fuel per year, eliminate many unnecessary delays and expand system capacity. Examples of current system limitations and their operational results include:

- Because of the "first-come, first-served" policy in place today, a Boeing 777 en route from Hong Kong to the United States in 2005 was forced to divert after 14 hours of flight when a local flight was allowed to land first because it had contacted the tower first
- Excessively prescriptive ATC speed-control measures used in meeting "miles-in-trail" separation requirements force pilots to make frequent throttle adjustments, increasing fuel consumption and emissions
- Lack of continuity across FAA en route centers often force aircraft away from their optimum cruise altitudes, resulting in greater fuel burn and emissions

Extra time in the air or on the ground means aggravation for passengers and added expense or forgone revenue for airlines. In particular, airlines incur additional crew costs and burn extra fuel. A given route by air may also become less time-competitive versus train or auto trips of similar distance. As airlines are forced to lengthen advertised flight ("block") times for routes to account for congestion in the national airspace system, they are unable to build as many schedule connections in reservation systems, resulting in substantial forgone revenue. In 2004, an extra minute of operations cost the airlines an average of $57.09. In our analysis of the New York LaGuardia (LGA)-Ronald Reagan Washington National (DCA) route segment, ATA found that the average block time grew by nine minutes from 1995 to 2005.

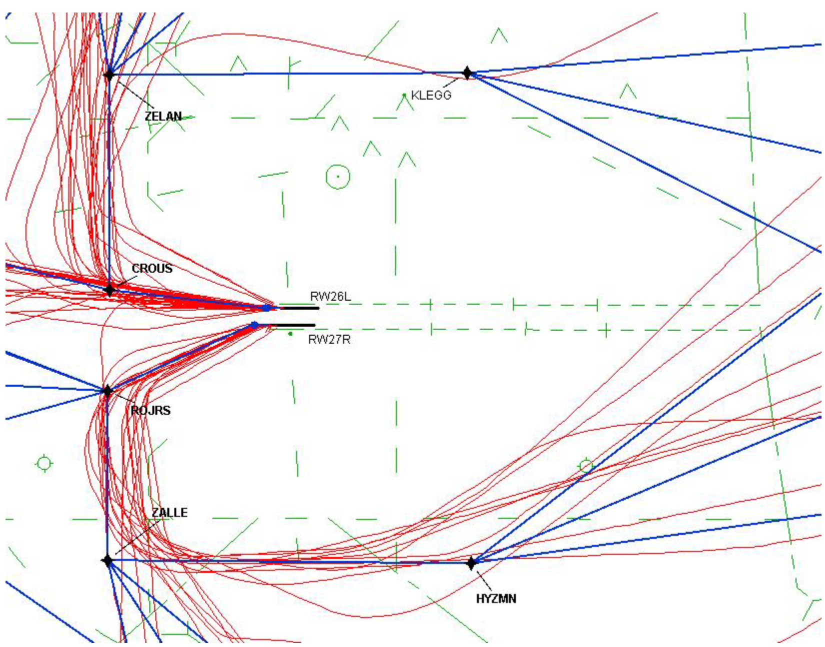
While nine minutes might not seem like much, there's an adage in this business that says small things can be big. Just taking one daily flight at 2004 costs, these extra nine minutes per mission translate to $189,000 in incremental annual expenses, for that operation alone. Extrapolating that flight across all U.S. airlines that fly the LGA-DCA route further translates to $12.7 million in additional annual expenses for the industry. Based on the average fare in that route, those airlines would need to carry 113,000 additional passengers each way. Stated differently, the additional funds needed to accommodate congestion on that route alone could be used to employ 169 airline workers at a cost of $75,000 per worker. And that's just on that single route.

While the current system is straining to keep up in some areas, we are seeing examples of the benefits that the next-generation ATC could hold. A very real example is that of “area navigation,” commonly referred to as RNAV. Air carriers have been working with the Federal Aviation Administration (FAA) to introduce new air traffic control procedures that will reduce fuel burn, as well as bear other benefits. A perfect example of this is the implementation of RNAV approach-and-departure procedures at Atlanta and Dallas-Fort Worth airports.

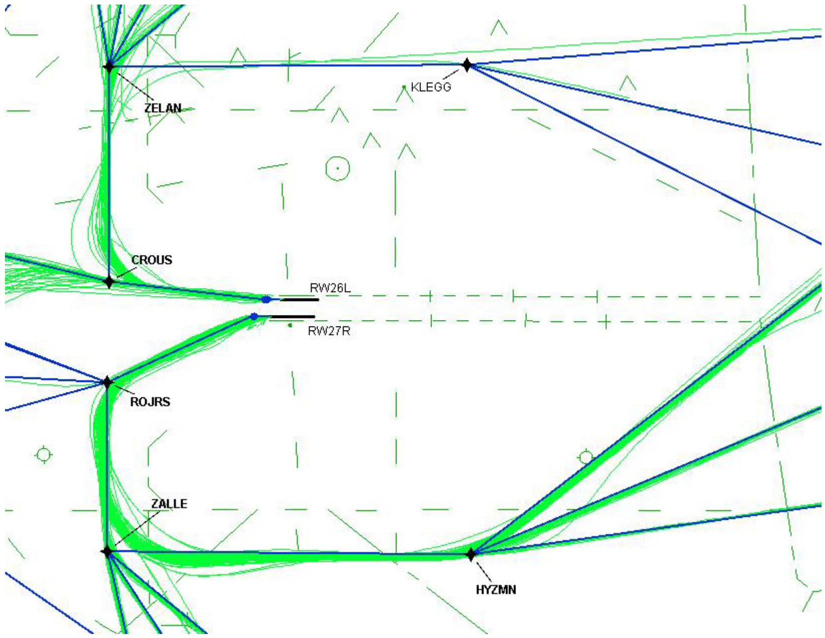
RNAV is a method of navigation that permits aircraft operation on any desired flight path within the coverage of station-referenced navigation aids or within the limits of the capability of self-contained aids, or a combination of these. RNAV routes and terminal procedures, including departure procedures and standard terminal arrivals, are designed with RNAV systems in mind. In addition to reduced fuel burn, RNAV routes and procedures also reduce dependence on radar vectoring, altitude and speed assignments, the associated ATC radio transmissions, and better maximize airspace capacity.

Below are graphic illustrations of operations during an RNAV trail at Atlanta Hartsfield-Jackson Airport before and after “turning on” RNAV. The first shows approaches to runways 26L and 27L prior to RNAV utilization, the second with RNAV procedures in use.

Traditionally Controlled Tracks



Aircraft-Guided RNAV Tracks



In addition to reducing costs to operators, fuel savings achieved through ATC improvements produce significant environmental benefits. For every gallon of fuel not burned, the related emissions are not released into the atmosphere. These include carbon dioxide, as well as substances that affect local air quality, such as oxides of nitrogen, which can contribute to ozone formation.

Moreover, specific revisions in air traffic management procedures can produce environmental benefits. A promising example is the Continuous Descent Approach (CDA) technique that the FAA is developing through its PARTNER Center of Excellence. CDA is a landing technique that uses a gradual descent slope rather than the staged plateaus used in today's standard procedures. In tests conducted on nighttime operations of B767 aircraft at Louisville, the CDA approach produced, per aircraft: a 4 to 6 dB reduction in peak noise, a 30 percent reduction in NOx emissions, a 500-pound fuel-burn reduction and a 100 second reduction in flight time. The FAA is actively working to identify other airports where the CDA approach can be deployed, develop guidelines specific to those airports and design appropriate controller procedures.

Other examples of ATC improvements that would help reduce fuel burn and emissions are:

- Airspace design and airplane/airport equipage are capable of near-constant arrival and departure rates, regardless of visibility conditions. With some exceptions, today's system works well during fair weather. However, airport throughput decreases during low-visibility conditions. Adoption of enabling technologies that will reduce the impacts of weather.

- Rationally segregate different types of aircraft can optimize traffic flow. Different aircraft types operate at different altitudes and speeds. Large transport aircraft generally fly faster and higher than smaller, noncommercial aircraft. Combining various types means that they all fly at the slower speed, reducing flows into an airport or on a route. Segregation could recapture capacity that is lost today by restricting speeds and forcing aircraft to operate at less than optimum efficiency.
- Management of total system performance. The airspace system of today is a patchwork of individually managed sectors of airspace. Flow restrictions that make sense for a particular area can be detrimental to system performance elsewhere. Decision-makers must adopt a broader view, managing capacity at the national level.

While the exact potential for fuel conservation and emissions reductions is difficult to quantify, because of the many variables yet to be resolved, these tests in Louisville, coupled with the RNAV implementations, demonstrate real-world benefits that give us a glimpse of what could be.

Finally, virtually all of the benefits of ATC modernization, not just fuel-related benefits, flow from improving the system to allow planes to spend less time in it. It has often been said that our planes don't make money on the ground, but it is equally true that they don't make money spending unnecessary time in the air. Shorter flight times mean fewer operational hours, which translates into reduced maintenance and more efficient crew utilization. Shortened flight times and reduced delays also make for happier customers. Happy customers translate into greater demand and when you mix that with lower operational costs you just might have the recipe for an industry turnaround.

Conclusion

In conclusion, no other industry is as conscious of energy consumption as passenger and cargo airlines. In the best of times conservation and efficiency are a way of life. In the worst of times they are a matter of survival. We are proud to tout the efficiency improvements that our members and the industry as a whole have posted over the past 30, years and we intend to keep up the pace, not just because we want to, but because we have to. But this is a cooperative effort between all participants in our nation's aviation system, not the least of which is the federal government.

With the pending reauthorization of the Airport and Airway Trust Fund this Committee has a unique opportunity to leverage advancements in technology and apply new ways of thinking in an effort to bring about long-needed changes in the way the national airspace system operates. ATA promises to continue to work with Congress and the FAA to take advantage of this opportunity, for the benefit our members, their customers and our nation's economy.